

## PCT

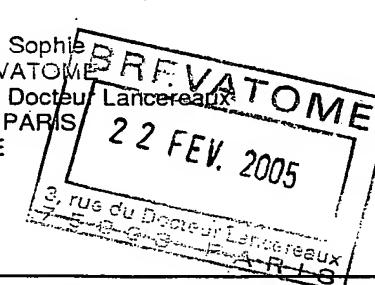
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B 14099.3 SL

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Demande internationale n°  
PCT/FR2003/001696

Date du dépôt international (jour/mois/année)  
06 juin 2003 (06.06.2003)

Déposant

COMMISSARIAT A L'ENERGIE ATOMIQUE etc

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## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference B 14099.3 SL	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR2003/001696	International filing date (day/month/year) 06 juin 2003 (06.06.2003)	Priority date (day/month/year) 11 juin 2002 (11.06.2002)
International Patent Classification (IPC) or national classification and IPC C23C 14/04, 14/12		
Applicant COMMISSARIAT A L'ENERGIE ATOMIQUE		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_\_\_ sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 02 janvier 2004 (02.01.2004)	Date of completion of this report 18 October 2004 (18.10.2004)
Name and mailing address of the IPEA/EP	Authorized officer
Facsimile No.	Telephone No.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/FR2003/001696

## I. Basis of the report

## 1. With regard to the elements of the international application:\*



the international application as originally filed



the description:

pages \_\_\_\_\_

1-37

, as originally filed

pages \_\_\_\_\_

, filed with the demand

pages \_\_\_\_\_

, filed with the letter of \_\_\_\_\_



the claims:

pages \_\_\_\_\_

1-33

, as originally filed

pages \_\_\_\_\_

, as amended (together with any statement under Article 19

pages \_\_\_\_\_

, filed with the demand

pages \_\_\_\_\_

, filed with the letter of \_\_\_\_\_



the drawings:

pages \_\_\_\_\_

1/6-6/6

, as originally filed

pages \_\_\_\_\_

, filed with the demand

pages \_\_\_\_\_

, filed with the letter of \_\_\_\_\_



the sequence listing part of the description:

pages \_\_\_\_\_

, as originally filed

pages \_\_\_\_\_

, filed with the demand

pages \_\_\_\_\_

, filed with the letter of \_\_\_\_\_

## 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:



the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).



the language of publication of the international application (under Rule 48.3(b)).



the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

## 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:



contained in the international application in written form.



filed together with the international application in computer readable form.



furnished subsequently to this Authority in written form.



furnished subsequently to this Authority in computer readable form.

The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.



The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4.  The amendments have resulted in the cancellation of: the description, pages \_\_\_\_\_ the claims, Nos. \_\_\_\_\_ the drawings, sheets/fig \_\_\_\_\_5.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

## IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- restricted the claims.
- paid additional fees.
- paid additional fees under protest.
- neither restricted nor paid additional fees.

2.  This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention in accordance with Rules 13.1, 13.2 and 13.3 is

- complied with.
- not complied with for the following reasons:

See supplemental sheet

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- all parts.
- the parts relating to claims Nos. \_\_\_\_\_ 1-12, 27-33 \_\_\_\_\_

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/FR 03/01696

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: IV

See separate sheet.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/FR 03/01696

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

## 1. Statement

Novelty (N)	Claims	1-33	YES
	Claims		NO
Inventive step (IS)	Claims	1-33	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-33	YES
	Claims		NO

## 2. Citations and explanations

See separate sheet.

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

## 1. Reference is made to the following documents:

D1: EP-A-1 132 493 (KIDO JUNJI; INTERNAT MFG AND  
ENGINEERING S (JP)) 12 September 2001  
(2001-09-12);

D2: SCHULZ-EKLOFF G ET AL: "Chromophores in porous  
silicas and minerals: preparation and optical  
properties" MICROPOROUS AND MESOPOROUS  
MATERIALS, ELSEVIER SCIENCE PUBLISHING, NEW  
YORK, US, vol. 51, no. 2, 30 January 2002  
(2002-01-30), pages 91-138, XP004335458 ISSN:  
1387-1811;

D3: VAN KONINGSVELD H ET AL: "Preparation and  
structure of crystals of zeolite H-ZSM-5 loaded  
with p-nitroaniline" MICROPOROUS MATER;  
MICROPOROUS MATERIALS MAR 1997 ELSEVIER SCIENCE  
B.V., AMSTERDAM, NETHERLANDS, vol. 9, no. 1-2,  
March 1997 (1997-03), pages 71-81, XP002235048;

D4: HOFFMANN K ET AL: "Optical characterization of  
organized adsorbates in zeolite microcrystals:  
Polarized absorption spectroscopy" ZEOLITES,  
ELSEVIER SCIENCE PUBLISHING, US, vol. 16, no.  
4, 1 April 1996 (1996-04-01), pages 281-286,  
XP004033291 ISSN: 0144-2449;

D5: HOFFMANN K ET AL: "PHOTOINDUCED SWITCHING IN  
NANOCOMPOSITES OF AZOBENZENE AND MOLECULAR  
SIEVES" ADVANCED MATERIALS, VCH

## Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

VERLAGSGESELLSCHAFT, WEINHEIM, DE, vol. 9, no. 7, 1 June 1997 (1997-06-01), pages 567-570,  
XP000694707, ISSN: 0935-9648;

D6: JACOBS G ET AL: "Characterization of the morphology of Pt clusters incorporated in a KL zeolite by vapor phase and incipient wetness impregnation. Influence of Pt particle morphology on aromatization activity and deactivation" APPLIED CATALYSIS A: GENERAL, ELSEVIER SCIENCE, AMSTERDAM, NL, vol. 188, no. 1-2, 5 November 1999 (1999-11-05), pages 79-98, XP004271986 ISSN: 0926-860X;

D7: US-A-4 882 232 (BUGNET BERNARD ET AL) 21 November 1989 (1989-11-21);

D8: MACCRAITH B D ET AL: "Sol-gel coatings for optical chemical sensors and biosensors" SENSORS AND ACTUATORS B, ELSEVIER SEQUOIA S.A., LAUSANNE, CH, vol. 29, no. 1, 1 October 1995 (1995-10-01), pages 51-57, XP004000851 ISSN: 0925-4005.

2. Objection with regard to the clarity of claims  
27-33

Even though the subject matter of claim 27 relates to a "use" of a method or a device, a claim relating to a "use" must, for the purpose of the

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

international preliminary examination, be considered to be equivalent to a method claim (cf. the PCT Guidelines III-4.9). As a result, even though claims 1 and 27 have been drafted as separate independent method and use claims, it appears that claim 27 is, in fact, a method claim dependent on claim 1. However, the varied terminology used to define the subject matter of claim 27 casts doubt on the dependency of claim 27 on claim 1. These claims do not, therefore, fulfil the requirement of PCT Article 6.

3. Unity of invention

As far as the device as per independent claim 13 is concerned, its definition in terms of the use to which it is put must be interpreted as meaning, simply, that the device is suitable for implementing the method as per claim 1 (cf. the PCT Guidelines III-4.8a). Therefore, it appears that the claimed device does not have any specific features related to the use to which it is put that would enable it to be differentiated from a device such as the one described in D1, which, moreover, has all of the features mentioned in claim 13. It follows that D1 deprives independent claim 13 of novelty, and the method disclosed in independent claims 1 and 27 is not linked by a common inventive concept to the device disclosed in claims 13-26 (PCT Rule 13).

**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Separate sheet

4. Novelty

D2 describes all of the methods used to incorporate chromophores into porous sol-gel silicas, molecular sieves and clay minerals. Vaporising the chromophores so that they are adsorbed, in vapour form, into the pores of a porous material is only described for zeolite molecular sieves that have not been produced using the sol-gel method. Said document proposes a liquid-phase adsorption technique (see page 101) for incorporating chromophores into a mesoporous molecular sieve produced using the sol-gel method.

Documents D3 to D5 describe the incorporation of organic compounds into zeolite crystals by means of vapour-phase adsorption.

Document D6 describes the incorporation of platinum into the pores of a zeolite in a precursor impregnation step followed by a step of decomposition by calcining.

D7 describes a method for producing a porous metal structure, in which a felt or fabric substrate is vacuum-metallised.

Finally, D8 describes a method for incorporating an organic compound into the pores of a microporous sol-gel material for chemical sensors. The compound is incorporated into the solution during

## Supplemental Box

(To be used when the space in any of the preceding boxes is not sufficient).

Continuation of: Separate sheet

the process for producing microporous materials by a sol-gel technique. Said document specifies that it is indeed possible to dope a microporous sol-gel material after it has been produced but that such a subsequent doping method does not allow the organic compound to be encapsulated in the pores. D8 does not specify that such subsequent doping includes the vaporisation or sublimation of the compound.

It follows that the subject matter of claims 1-12 and 27-33 is novel over the available documents.

5. Inventive step

The incorporation of a compound by vaporisation or sublimation into mesoporous or microporous materials produced using the sol-gel method cannot be derived from the available documents, considered individually or in combination. Furthermore, the teaching of D8 would even lead a person skilled in the art away from the subject matter of the present application. As a result, the subject matter of claims 1-12 and 27-33 involves an inventive step.

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